Fact Sheet

The Study to Explore Early Development (SEED)

The Study to Explore Early Development (SEED) is a 5-year, multisite collaborative study. It will help identify what might put children at risk for autism spectrum disorders (ASDs) and other developmental disabilities. Six study sites and a data coordinating center make up the Centers for Autism and Developmental Disabilities Research and Epidemiology (CADDRE) Network. The CADDRE Network was a result of the passage of the Children's Health Act of 2000. That act directed CDC to create regional centers of excellence to study ASDs and other developmental disabilities.

CDC has funded five study sites –

- California - Kaiser Foundation Research Institute, which will be working with the California Department of Health Services.
- Colorado Department of Public Health and Environment, which will be working with the University of Colorado at Denver and Health Sciences Center.
- Maryland - Johns Hopkins University, which will be working with the Kennedy Krieger Research Institute and Drexel University
- University of North Carolina at Chapel Hill.
- University of Pennsylvania, which will be collaborating with Children's Hospital of Philadelphia.

CDC will be part of the study as the sixth study site, and provides staff and other resources for a CADDRE site in Atlanta, Georgia.

CDC also funds Michigan State University to run the study's Data Coordinating Center and Johns Hopkins University to run the study's central laboratory.

SEED will:

- Be the largest collaborative scientific study to date of the causes of autism. It will include about 2,700 children, 2 through 5 years of age, as well as their parents.
- Include diverse groups from six areas across the county. This will give a more representative sample of all children with ASDs in the United States.
- Use standard clinical procedures to classify children with and those without ASDs.
- Give information on the many things that could lead to autism.

SEED will look at risk factors for ASDs by:

- Talking with mothers about pregnancy-related issues.
- Looking at the medical records of the mother and child.
- Asking the parents to fill out questionnaires at home.
- Taking cheek swabs from the mother, father, and child.
- Doing a developmental and physical evaluation of the child.

- Taking a small sample of blood from the mother, father, and child.
- Taking a small sample of hair from the child.

A number of factors will be studied for their potential link with ASDs. These factors were picked after an in-depth look at existing studies. Each factor was chosen as high priority based on:

- How strongly it seemed to be linked with ASDs.
- What new information was needed about it.
- How well it could be looked at using this study's methods.

These factors include:

- **Physical and behavioral characteristics:** Autism is a complex disorder. The study will strive to better understand the full range of traits that are seen in autism. This could mean a better understanding of how the different causes of autism might be linked with specific subgroups of children within the autism spectrum.
- **Infection and immune function, including autoimmunity:** The study will follow up on reports that infections, or an abnormal response to infection (called the body's immune response), might raise the risk for autism.
- **Reproductive and hormonal features:** The study will look at reports that abnormal hormone function—perhaps in the mother when she is trying to get pregnant, or later during pregnancy, or even later in the child after birth—might be linked with autism.
- **Gastrointestinal features:** The study will follow up on reports that children with autism have abnormal gastrointestinal function, and whether it might be related to the causes of autism.
- **Genetic features:** Autism is known to be a genetic disorder, at least in part. The study will look at whether the genes related to risk factors being investigated—such as the genes that control immune function—are linked with autism.
- **Sociodemographic features:** The study will try to better understand the social, demographic, and economic features that are present for families who have a child with autism.
- **Smoking, alcohol, and drug use during pregnancy:** Substance use in pregnancy can potentially harm the developing fetus. The study will look at whether these factors are linked with autism.
- **Sleep features**: The study will follow up on reports that children with autism have abnormal sleep patterns.
- **Select mercury exposures:** SEED will look into specific mercury exposures, including any vaccine use by the mother during pregnancy, the child's vaccine exposures after birth, and RhoGAM treatment for mothers (used when there is maternal and fetal blood type incompatibility).
- **Parents' occupation:** The study will also look at job history of the mother and father for possible occupational exposures around the time of pregnancy.
- **Hospitalizations and Injuries:** The study will look at how often children are injured or need to go to the hospital and whether this is different in children with autism compared to children with other developmental problems or without developmental problems.
- **Biomarkers:** The study will look at biomarkers in the cheek swab and blood sample that might be linked with autism.

For information on CDC's autism activities, please visit www.cdc.gov/autism.

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